

AMENDMENTS TO THE DRAWINGS

Fig. 8 has been amended as enclosed to comply with Examiner's requirements. Specifically, the area of water 801 has been made lighter and labeled with an underscore within its area to identify it as water. The area of sediment 802 was made lighter but still darker than the area of water 801 and labeled with an underscore within the area to identify it as sediment 802 of a more opaque nature than the water 801. The umbilical cord 803 has been indicated with an arrow and extended to the surface of the water 801 to indicate its purpose of communicating with a system above the surface of the water 801. The anchor 804 has been labeled with an underscore within its boundary to identify it as an anchor 804. The label "300" has been removed as being mis-leading in its use in Fig. 8. The label 301 now indicates the support 301 with an arrow instead of a plain line.

Additionally, Fig. 3 has been amended as enclosed to remove the box labeled 303 around the elements 304 and 305. There was no mention of an element representing the label 303 in the Specification.

REMARKS

Applicant appreciates Examiner's timely review of the application. Claims 1-4, 8, 10, 16, 19, 22 and 23 have been amended previously and Claims 5-7, 9, 11-15, 17, 18, 20 and 21 are as originally provided. No new material has been added. Reconsideration of the application is respectfully requested.

To assist in reviewing Applicant's response: where Applicant has quoted Examiner's office action, the quoted material is single-spaced and indented and Applicant's response to Examiner's concerns is in bold print.

Under *Specification*, in para. 1 of the office action, Examiner states:

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Applicant has amended the title herein to address Examiner's concerns. However, it does not appear that Examiner has complied with the requirements of MPEP § 706.07 in identifying this Office Action as a Final Office Action. Perhaps this was inadvertent. Specifically, the following is pertinent:

Before final rejection is in order a clear issue should be developed between the examiner and applicant. To bring the prosecution to as speedy conclusion as possible and at the same time to deal justly by both the applicant and the public, the invention as disclosed and claimed should be thoroughly searched in the first action and the references fully applied; and in reply to his action the applicant should amend with a view to avoiding all the grounds of rejection and objection. Switching from one subject matter to another in the claims presented by applicant in successive amendments, or from one set of references to another by the examiner in rejecting in successive actions claims of substantially the same subject matter will alike tend to defeat attaining the goal of reaching a clearly defined issue for an early termination, i.e., either an allowance of the application or a final rejection.

While the rules no longer give to an applicant the right to "amend as often as the examiner presents new references or reasons for rejection," present practice does not sanction hasty and ill-considered final rejections. The applicant who is seeking to define his or her invention in claims that will give him or her the patent protection to which he or she is justly entitled should receive the cooperation of the examiner to that end, and not be prematurely cut off in the prosecution of his or her application....

The examiner should never lose sight of the fact that in every case the applicant is entitled to a full and fair hearing, and that a clear issue between applicant and examiner should be developed, if possible, before appeal. (emphasis added).

Applicant has not been referred to the additional references cited in this Office Action even though they could easily have been referenced in the first Office Action had the Examiner been more thorough. Nothing in Applicant's response to the first Office Action changed the fact that these references should have been provided in the first Office Action. Further, Applicant should have been advised that the Title was allegedly not descriptive in the first Office Action since Applicant made no change to the title in the response. Finally, Applicant made no change to the drawings in the response to the first Office Action, thus it appears that the Examiner may have been "hasty" in his initial examination, and thus not provided Applicant opportunity to answer in a second non-final Office Action. Therefore, Applicant respectfully requests the Examiner to re-classify the second Office Action as a non-final Office Action.

Further, under *Drawings*, Examiner states:

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the differentiation between the labeled components such as 802, 803, 804 are unclear. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office Action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Applicant has amended Figs. 3 and 8 herein, as explained above, to address Examiner's concerns.

Further, Examiner, under the section *Claim Rejections – 35 U.S.C. § 102*, quotes 35 U.S.C. § 102 (b).

In para. 2 of this section, Examiner states:

Claims 1, 2, 4, 7, 14, 15, 22 and 23 as understood by the examiner are rejected under 35 U.S.C. 102(b) as being anticipated by Sayka et al. US5743135.

With respect to claims 1, 2, 4, 7, 14, 15, 22 and 23, Sayka et al. disclose a system (300) for monitoring and alerting changes by measuring optical reflections from a media (308) adjacent a part of said system comprising: an array of optical fibers (351-356), arranged vertically, attached to a support having a length, width, and depth (360, a rigid tube), each optical fiber in said array of optical fibers having an end exposed orthogonal to said media (see Fig. 3) and said length of said support; wherein said array of optical fibers communicates a pre-specified level of detail as date regarding said changes from the reflections (read col. 5, lines 4-51) detected by at least one photodetectors (380, optical receiver); at least one source of optical signals (320, LED emits red light) in operable

communication with each of said optical fibers (see Fig. 3) is provided to connect each said optical fibers to said at least one source (320) and/or said at least one photodetectors; and at least one sub-system (320, 330, 370, 380, 390, 392, 394) in operable communication with each said optical fiber during the operation of said system, wherein said data are processed by said sub-system to provide measurement of and alerting to said changes, wherein the sub-system includes a processing and control device (390) connected to a display (392); and said change may be recorded and displayed via sub-system.

Sayka et al.'s system inherently performs claimed method step (claim 23).

Applicant has amended independent Claims 1, 22 and 23 to indicate a system (Claims 1 and 22) and method (Claim 23) for operating in an "unenclosed natural environment" thus clearly distinguishing Applicant's invention from the Sayka et al. patent. (p. 2, lines 14–21, p. 5, line 27– p. 6, line 2, Fig. 8) The Sayka et al. invention, both as claimed and as described in the specification, is unable to operate in an unenclosed (or unconfined) natural environment. In particular, it can not operate in sediments which would prevent the float of Sayka et al. from operating. Further, as noted above, Applicant has previously amended Claims 2 and 4, each still depending from currently amended Claim 1. Claims 7, 14 and 15 also depend from currently amended Claim 1. The amendments to independent Claims 1, 22 and 23 further clarify the application of Applicant's invention to an unenclosed natural environment. The amendments made to independent Claim 1 serve to place both independent claim 1 and dependent Claims 2–21 in form for allowance. The amendments made to independent Claims 22 and 23, respectively, serve to place independent Claims 22 and 23 in form for allowance.

Further, Applicant's invention uses the same optical fiber to both transmit and receive each signal over a fixed length optical fiber in a fixed array. (p. 7, lines 6–10, Figs. 4, 5 and 9) Applicants' invention uses no moving parts as does Sayka et al. (the float). A float has no purpose in Applicant's invention since there is no confined space in which it would provide a relative measure. Further, a float would work only in a liquid and would be of no use in sedimentary media 802. (Fig. 8) The float is an integral part of the Sayka et al. invention and thus Applicant's invention is distinguishable from Sayka et al. in not needing a float, a distinction that overcomes any 35 U.S.C. § 102(b) objection *per se*. Applicants' invention must have the face of the open end of each optical fiber be approximately orthogonal to the media to be measured for the mathematics to work. (p. 5, lines 15–26, Fig. 8) Such is not the case for the Sayka et al. invention. It is not physically

possible for the Sayka et al. invention to work as intended if the Sayka et al. device were configured as Applicant's invention is intended to be configured in a preferred embodiment. (Fig. 8) Although this argument was made in the response to the initial Office Action, Examiner chose to not address it, thus, Examiner's second Office Action is non-responsive with respect to the above previously made argument.

Again, Applicant respectfully disagrees with Examiner's characterization of his invention. Differences between Applicant's invention and the Sayka et al. device include:

1. Applicant's invention requires no moving parts as the collection portion is an array affixed to a support. (p. 3, lines 30–31; p. 4, lines 20–21 (method); p. 6, lines 15–17, 27–29; Figs. 3 and 8) As such Applicant's invention is more reliable in the harsh environment expected in unenclosed natural media, such as seawater around a pier or piling.
2. Applicant's invention has the ends of the optical fibers 302 arranged approximately orthogonal to the long axis of its support 301 (p. 3, lines 20–22, 30–31; p.4, lines 22–23 (method), Fig. 3) which is different from the manner in which Sayka et al. arrange the ends of their fiber optics to the inner sides of the tube to measure the response only at the position of the float.
3. As opposed to the Sayka et al. device operating only in fluids and requiring a float, in preferred embodiments, Applicant's invention is buried in a solid 802, e.g., sediments, and preferably employs an anchor 804 to assure stability. (p. 4, lines 16–17; Fig. 8) Again, the Sayka et al. device could not work in the same unenclosed natural environment that Applicant's invention is designed to operate in.
4. Applicant's invention uses a fixed configuration to both measure a "pre-specified level of detail" (p. 3, lines 25–26, p. 4, lines 24–25 (method)) and sense change in the characteristics of the media 801, 802 (p. 3, lines 18–21, 25–26, Fig. 8) not just to determine if a correct type of media is present or the level of a fluid in a container. That is, Applicant's invention may be used in scientific explorations of

scouring activities to measure both the amount and rate of scour (or conversely sedimentation), not just the position of a float at a given time. Applicant's invention works at specific locations in an unenclosed volume in a natural setting that comprises both fluids and solids (sediments), the amount of each type amenable to change with the total amount available not being constrained by a fixed container. (p. 2, lines 14–21, Abstract, Fig. 8)

5. Applicant's invention uses optical couplers 403 (splitters) to efficiently send and receive signals on the same optical fiber. (p. 4, lines 1-2, p. 5, lines 1–2 (method); p. 6, lines 27–29; p. 7, lines 24–25; Figs. 4 and 5). In select embodiments of Applicant's invention, use of the couplers 403 and a multiplexer 305 enables Applicant's invention to be employed with a single light source 405, e.g., one LED. (p. 6, lines 17–19, Figs. 3 and 4)

6. In select embodiments of Applicant's invention, interference from ambient light is addressed via use of bandpass filtering 407 (p. 8, lines 12–14, Fig. 5) or the use of a 3-KHz square wave light source (p. 8, lines 15–22, Fig. 4). For the Sayka et al. invention, ambient light in a closed opaque container is not such a problem and thus, there was no motivation to modify the Sayka et al. device to add something not needed.

7. For Applicant's invention to work as intended for monitoring in a natural unenclosed environment, one need only establish a "baseline" reflection or transmission coefficient in the media 801, 802 in which it is immersed. (Fig. 8) For example, once Applicant's device is implanted in sediment 802 and an initial reading of the response from the sediment 802 is taken from those optical fibers 302 embedded in the sediment 802, no further data need be recorded until such time as the readings change. Thus the data that needs recording is that which indicates change. Further, until such change

is indicated, the sampling rate may be low. (p. 2, lines 10–11, p. 4, lines 7–10, p. 5, lines 6-28 and p. 6, lines 1-14)

8. The purpose of Applicant's invention is entirely different from the Sayka et al. device. (Abstract) Users of Applicant's invention wish to know how the surface of an object placed in an unenclosed (or unconfined) volume is "covered" or "uncovered" by an outside influence, e.g., a scouring or sedimentation event. The Sayka et al. device is designed to determine only the level of the demarcation line of two fluids in a container.

Although the above arguments were also made in the response to the initial Office Action, Examiner chose to not address each specifically, thus, Examiner's second Office Action is non-responsive with respect to the above eight previously made arguments.

Further, Examiner, under the section *Claim Rejections – 35 U.S.C. § 103*, quotes 35 U.S.C. § 103 (a).

In para. 2 of this section, Examiner states:

Claims 13 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sayka et al. US5743135.

With respect to claim 13, per the above discussion, Sayka et al. fail to teach an anchoring device.

Although Sayka et al. lack a clear inclusion of an anchoring device to prevent vibrations or displacement of the system in order to provide better measurements and/or accurate results would have been obvious to one of ordinary skill in the art,

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Sayka et al. with an inclusion of an anchoring device to prevent any movements and/or shifting of the system in order to provide a more reliable measurement results from the system.

Applicant again notes that the purpose of an anchor is to secure an item in an environment that is less than stable, such as a river subject to flooding or harbor subject to shifting tides. There is no expectation that anyone reviewing the Sayka et al. patent describing a device intended for use inside a tank in its inherently benign environs would ever visualize the need for a heavy anchor on the end of the Sayka et al. device.

Therefore, there is no motivation to combine elements from another patent or publication with the Sayka et al. device.

5 With respect to claim 20, per the above discussion, although Sayka et al. disclose a microprocessor (390) connecting to a display (392) but lack a clear inclusion of at least one multi-channel multiplexed data acquisition printed circuit board incorporating at least one analog-to-digital convert (sic); and software loadable on a personal computer for processing said data, since it is known in the art that a computer system and/or microprocessor is a combination
10 of (sic) plurality of semiconductor chips built by a plurality of electronics components with printed circuit board and any desired programmable software loadable onto the chips for acquiring desired data by the instruction of the program or software, it would have been inherently included, however, if not, it would have been obvious to one of ordinary skill in the art to modify Sayka et al.
15 accordingly in order to provide sufficient means to process and/or manipulate signal (sic) and/or data obtained by the system.

**The provision of a particular version of a processor, i.e., Applicant's multi-channel multiplexed PC board incorporating an A-D converter and software loaded in the
20 processor, provides an alternate configuration commensurate with the concept of claim differentiation. (p. 7, lines 2-5) Applicant has amended Claim 1 herein to reflect use of Applicant's invention in an unenclosed (or unconfined) natural environment. Claim 20 depends from Claim 1 and Claim 20 is submitted to establish the possibility of using alternate configurations of hardware and software to achieve a desired result under a
25 principle known as claim differentiation.**

**Again, no motivation is shown by the Examiner for anyone to take a device having specific application for determining a level of the demarcation between two fluids in a closed container, i.e., the Sayka et al. device, removing the float and the tube within which the float operates, and replacing it with a bundle of parallel optical fibers, each of a
30 different length and each having a right angle bend at its terminus for detecting either scour or sedimentation at pre-specified locations within an open body of water. Thus, there is no motivation to combine elements from another patent or publication with the Sayka et al. device. Further, Examiner did not respond specifically to this argument made in the response to the first Office Action. See, *In re Beasley* (Fed. Cir., December 7,
35 2004) (04-1225 Unpublished Opinion) (Statements made by the examiner, upon which the Board of Patent Appeals and Interferences relied, amounted to no more than conclusory**

statements of generalized advantages and convenient assumptions about skilled artisans. At least under the MPEP then in effect such [conclusory] statements and assumptions are inadequate to support a finding of motivation, which is a factual question that can not be resolved on subjective belief and unknown authority.) See also, *Teleflex v. KSR* (Fed. Cir. 2004) (Unpublished) (District Court overturned because there were no "finding[s] as to the specific understanding or principle within the knowledge of a skilled artisan that would have motivated one with no knowledge of [the] invention to make the combination in the manner claimed.")

As the USPTO recognizes in MPEP § 2142:

The legal concept of *prima facie* obviousness is a procedural tool of examination which applies broadly to all arts. It allocates who has the burden of going forward with production of evidence in each step of the examination process. ... The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of non-obviousness. ... The initial evaluation of *prima facie* obviousness thus relieves both the examiner and applicant from evaluating evidence beyond the prior art and the evidence in the specification as filed *until the art has been shown to suggest the claimed invention.* (emphasis added)

"... the examiner must step backward in time and into the shoes worn by the hypothetical 'person of ordinary skill in the art' when the invention was unknown and just before it was made." MPEP § 2142. The examiner must put aside knowledge of the applicant's disclosure, refrain from using hindsight, and consider the subject matter claimed "*as a whole.*" Applicant does not find the Examiner's compliance with the above principles in this Office Action or in the original Office Action.

There must be a basis in the Art for combining or modifying references.

MPEP § 2143.01 states:

The mere fact that references *can be* combined or modified does not render the resultant combination obvious unless the prior art *also suggests the desirability* of the combination. (emphasis added) *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).

Again, the Applicant was not provided a basis "suggesting the desirability" of combining the cited patents.

Further, the U. S. Court of Appeals for the Federal Circuit (CAFC) has stated that "the mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious *unless the prior art suggested the desirability of the modification.*" (emphasis added). *In re Fritch*, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992) (citing *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984)). The Examiner has not provided a single example in the prior art that suggests the desirability of the combination, but rather that there exist separate inventions, each using one of the elements of Applicant's invention in a manner not ever suggesting combining that one element with the invention of Sayka et al. Employing only the hindsight of the Examiner is not sufficient to sustain an obviousness rejection.

The court noted that "[to] prevent the use of hindsight based on the invention to defeat patentability of the invention, this court *requires the examiner to show a motivation to combine the references* that created the case of obviousness." *Id.* at 1357, 47 USPQ2d at 1457-58.

The court further noted that there were three possible sources for such motivation, viz., "(1) the nature of the problem to be solved; (2) the teachings of the prior art; and (3) the knowledge of persons of ordinary skill in the art." *Id.* at 1357, 47 USPQ2d at 1458. The court noted that the Board had relied simply upon "the *high level of skill in the art to provide the necessary motivation*" *without explaining what specific understanding or technological principle within the knowledge of one skilled in the art would have suggested the combination.* Notably, the court said: "If such a rote invocation could suffice to supply a motivation to combine, the more sophisticated scientific fields would rarely, if ever, experience a patentable technical advance." *Id.* (emphasis added). The Examiner has shown no motivation of any sort other than recognizing himself as one of ordinary skill in the art with no explanation of what specific understanding or technological principle within the knowledge of one skilled in the art at the time of the invention would have suggested the combination.

Paraphrasing Judge Linn from *In re Kotzab*, 217 F.3d 1365, 55 USPQ2d 1313 (Fed. Cir. 2000):

As to hindsight: A critical step in analyzing the patentability of claims pursuant to § 103(a) is casting the mind back to the time of the invention, to consider the thinking of

one skilled in the art, guided only by the prior art references and the then-accepted wisdom in the field. ... Close adherence to this methodology is especially important in cases where the very case with which the invention can be understood may prompt one "to fall victim to the insidious effect of a hindsight syndrome wherein that which only the invention taught is used against the teacher." (*Id.* at 1369, 55 USPQ2d 1316) (citations omitted).

As to motivation: Most, if not all, inventions arise from a combination of old elements. ... Thus, every element of a claimed invention may often be found in the prior art. *See Id.* However, *identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention. See Id.* Rather, to establish obviousness based on a combination of the elements disclosed in the prior art, *there must be some motivation, suggestion or teaching of the desirability of making the specific combination* that was made by the applicant. (*Id.* at 1369, 55 USPQ2d at 1316) (citations omitted). Applicant's invention uses an array of optical fibers 302, each of a different length arranged along the length of a support 301 to enable monitoring of an event in nature normally occurring below the surface of an open body of water. (Figs. 3 and 8) Typical events include scour from a Spring runoff or sedimentation from wave action. Sayka et al. employ a float in a closed container to determine a line of demarcation between two fluids (not a fluid and a solid) in the container, a very benign application. No motivation exists to use the Sayka et al. device to do anything but collect data on the position of a movable float.

It would be entirely unsuited to the task for which Applicant's invention is designed.

The prior art itself provides no apparent reason for one skilled in the art at the time of the invention to make a modification of the referenced patents, thus a *prima facie* case of obviousness is not made. Also, the Federal Circuit has repeatedly warned against using the applicant's disclosure as a blueprint to reconstruct the claimed invention out of isolated teachings in the prior art. *See, e.g., Grain Processing Corp. v. American Maize-Products*, 840 F.2d 902, 907, 5 USPQ2d 1788, 1792 (Fed. Cir. 1988). *Also see, In re Rouffet*, 149 F.3d 1350, 47 USPQ2d 1453 (Fed. Cir. 1998).

Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sayka et al. US5743135 in view of Boffi et al. US6373617.

With respect to claims 16-18, per the above discussion, Sayka et al. fail to teach at least one of said optical signals are provided as a cyclical signal that is a square wave.

Boffi et al. disclose an optical system having optical control beam having optical signals provided as a cyclical square wave (read col. 8, lines 32-46).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Sayka et al. with the cyclical square wave taught by Boffi et al. in order to provide more control to the performance of the optical signals. Further citations in claim 18 regarding three KHz cycle would have been obvious for similar reasons set forth in the above discussion.

As previously presented, the provision of cyclical signals has little to do with "more control to the performance of the source" but rather enables ready distinction between ambient light and the desired signal, i.e., the reflection from the end of the optical fiber interface and the media 801, 802 into which the cable 302 is inserted, typically sediments 802 (mud) or water 801. (p. 8, lines 15-24, Figs. 4, 5 and 8) This is an important alternative embodiment for Applicant's invention because the invention must work in a naturally occurring unenclosed environment as indicated in currently amended Claim 1 upon which Claims 16-18 depend. The Sayka et al. device would not have this problem since it is inserted in a closed container, hence, those having knowledge of the Sayka et al. patent at the time Applicant's device was invented, would have no motivation to add components that would not yield any beneficial result with respect to the application addressed by the Sayka et al. patent. This includes a complex and expensive source modulation device 404 (Figs. 4 and 5). Applicant has submitted Claims 16-18 for claim differentiation purposes as well, so as to establish the possibility of using a configuration to readily distinguish the reflections from the end of the optical cable 302 and the natural environment in open water in which extreme scour and sedimentation occurs during periods such as Spring runoff of a mountain stream or wave action during a tropical storm. Further Applicant's rationale provided as above for Claim 20 applies here also, Claims 16 and 20 being dependent upon Claim 1, Claim 17 being dependent upon Claim 16 and Claim 18 being dependent upon Claim 17.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sayka et al. US5743135 in view of Keller US4544840.

With respect to claim 3, per the above discussion, Sayka et al. fail to teach a multiplexer.

Keller discloses a fiber optic detector system having a multiplexer (604) connecting to a light source (300).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Sayka et al. by utilizing a multiplexer taught by Keller in order to provide better management of the light and/or signals transmitted through the optical fibers.

Applicant has amended Claim 1 herein to establish the very different purpose of Applicant's invention from that of Sayka et al. (and also Keller). Claim 3 depends from Claim 1. Applicant further notes that the purpose of a multiplexer 305 is to reduce the complexity of a system by permitting separate functions to share a single device, thus reducing the expense, size and complexity of the resultant system, while providing fewer components to maintain and eliminating the possibility of failure in the components that have been omitted. Other than these benefits, the multiplexer 305 does not provide "better management of the light and/or signals transmitted through the optical fibers."

Applicant has submitted Claim 3 for claim differentiation purposes as well as to establish the possibility of using a multiplexer 305 as an alternate configuration to reduce the complexity of the system.

Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sayka et al. US5743135 in view of Weiss US6356675.

With respect to claim 5, per the above discussion, Sayka et al. fail to teach said optical fibers are plastic.

Weiss discloses a fiber optic system suggests (sic) use (sic) plastic optical fibers (col. 2, lines 40-60).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Sayka et al. by using plastic fibers taught by Weiss in order to provide easier mounting and/or installing of the optical fibers.

As discussed above, Claim 1 has been amended to reflect the use of Applicant's invention in natural unenclosed environments. Claim 5 depends from Claim 1 as amended. As previously discussed, the provision of plastic optical fibers 302 has little to do with ease of mounting or installation. Applicant has submitted Claim 5 for claim differentiation purposes as well as to establish the possibility of using a robust configuration to withstand the harsh environment of open water in which extreme scour and sedimentation occurs during periods such as Spring runoff of a mountain stream or

wave action during a tropical storm. Further, Applicant's rationale provided as above for Claim 20 applies here also, both Claims 20 and 5 being dependent upon Claim 1.

With respect to claim 6, per the above discussion, Sayka et al. fail to teach said optical fibers have an index of refraction of approximately 1.492.

5 Weiss discloses the optical fibers have an index of refraction 1.492 (col. 2, lines 40-60).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Sayka et al. by utilizing an optical fibers (sic) having an index of refraction of 1.492 taught by Weiss in order to provide more control
10 to the modulation of the light and/or signal in the optical fibers.

**As discussed above, Claim 1 has been amended to reflect the use of Applicant's invention in natural unenclosed environments. Claim 6 depends from Claim 1 as amended. As discussed previously, the provision of optical fibers 302 with an index of
15 refraction of 1.492 has little to do with control of the modulation but rather enables ready distinction between the end of the fiber optic cable 302 and the media 801, 802 into which the cable 302 is inserted, typically sediments 802 (mud) or water 801 as would be experienced in the intended use of Applicant's invention in a natural unenclosed and unprotected environment. Applicant has submitted Claim 6 for claim differentiation
20 purposes as well as to establish the possibility of using a configuration to readily distinguish the reflections from the end of the optical cable 302 and the environment of open water in which extreme scour and sedimentation occurs during periods such as Spring runoff of a mountain stream or wave action during a tropical storm. Further, Applicant's rationale provided as above for Claim 20 applies here also, both Claims 20
25 and 6 being dependent upon Claim 1.**

Claims 8, 9 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sayka et al. US5743135 in view of Pellinen et al. US5467194.

With respect to claims 8 and 9, per the above discussion, note that Sayka et al. disclose the light reaching the photodetectors can be frequency filtered in
30 order to enhance photodetectors' sensitivity but fail to teach a high pass filter and an amplifier.

Pellinen et al. disclose in fig. 5 a high pass filter (33) and an amplifier (32) in a signal processing system controlled by a microprocessor (40).

It would have been obvious to one of ordinary skill in the art at the time
35 of the invention to modify Sayka et al. with inclusions of a high pass filter and an amplifier taught by Pellinen et al. in order to filter out the unwanted signals, increase output signals to a desired level and provide a more accurate measurement results (sic) from the system.

As discussed above, Claim 1 has been amended to reflect the use of Applicant's invention in natural unenclosed environments. Claims 8 and 9 depend from Claim 1 as amended. As discussed previously, the provision of a high pass filter 407 with an amplifier 408 has little to do with accuracy of results but rather enables ready distinction between ambient light and a desired signal, i.e., the reflection from the end of the optical fiber 302 interface and the media 801, 802 into which the cable 302 is inserted, typically sediments 802 (mud) or water 801 as may be found in an unenclosed (or unconfined) natural setting such as that in which Applicant is suited for use. (Fig. 8) The Sayka et al. device would not have this problem since it is inserted in a closed container, hence, those knowledgeable of Sayka et al. would have no motivation to add components that would not yield any beneficial result with respect to the Sayka et al. application. Further, the Peinen et al. device is intended for use inside a building, i.e., in a manufacturing setting, not in an unenclosed natural environment. Applicant has submitted Claims 8 and 9 for claim differentiation purposes as well as to establish the possibility of using a configuration to readily distinguish the reflections from the end of the optical cable 302 and the natural environment in open water in which extreme scour and sedimentation occurs during periods such as Spring runoff of a mountain stream or wave action during a tropical storm. Further Applicant's rationale provided as above for Claim 20 applies here also, Claims 20 and 8 being dependent upon Claim 1, Claim 9 being dependent upon Claim 8.

With respect to claim 19, although Sayka et al. lack a clear teaching of said photodetector is (sic) selected from a group consisting of a phototransistor and/or a photodiode, selecting specific type (sic) of photodetectors would have been obvious to one of ordinary skill in the art in order to provide a long lasting life of performance to the photodetector.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Sayka et al. accordingly in order to provide a compact design of the system.

As discussed above, Claim 1 has been amended to reflect the use of Applicant's invention in natural unenclosed environments. Claim 19 depends from Claim 8 which depends from Claim 1 as amended. As discussed previously, the provision of a particular version of photodetector 406 (Fig. 4) has little to do with "providing a compact design of

the system." Applicant has submitted Claim 19 for claim differentiation purposes as well as to establish the possibility of using alternate configurations of photodetectors 406 to readily distinguish the reflections from the end of the optical cable 302 and the natural environment in open water in which extreme scour and sedimentation occurs during periods such as Spring runoff of a mountain stream or wave action during a tropical storm. Further Applicant's rationale provided as above for Claim 20 apply here also, Claim 20 being dependent upon Claim 1 and Claim 19 being dependent upon Claim 8 which is dependent upon Claim 1.

Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sayka et al. US5743135 in view of Suguira et al. US4927266.

With respect to claims 10 and 11, per the above discussion, Sayka et al. fail to teach said sub-system comprises a power meter.

Sugiura et al. disclose a optical system (see abstract) with optical power meter (102) for monitoring the optical output from a light source (101, read col. 3, lines 5-25).

Although Sayka et al. lack a clear inclusion of a power meter, using a known and available power meter to indicate the power and/or signals of said sub-system would have been obvious to one of ordinary skill in the electronic art.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Sayka et al. with an inclusion of a power meter taught by Suguira in order (sic) monitor the performance of the sub-system.

As discussed above, Claim 1 has been amended to reflect the use of Applicant's invention in natural unenclosed environments. Claims 10 and 11 depend from Claim 1 as amended. As discussed previously, the provision of a power meter 901 (Fig. 9) has little to do with monitoring the performance of the sub-system but rather is an alternate configuration to the circuitry 406, 407, 408, 409 provided in Figs. 4 or 5, including the high pass filter 407 and amplifier 408 combination. The Sayka et al. device would not have to use a power meter 901 since it is inserted in a closed container, hence, those knowledgeable of Sayka et al. would have no motivation to add components that would not yield any beneficial result with respect to the Sayka et al. application. Applicant has submitted Claims 10 and 11 for claim differentiation purposes as well as to establish the possibility of using a configuration to readily distinguish the reflections from the end of the optical cable 302 and the natural environment in open water in which extreme scour and sedimentation occurs during periods such as Spring runoff of a mountain stream or

wave action during a tropical storm. Further Applicant's rationale provided as above for Claim 20 applies here also, Claims 20 and 10 being dependent upon Claim 1 and Claim 11 being dependent upon Claim 10.

5 Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sayka et al. US5743135 in view (sic) Keller US5444840 and further in view of Young et al. US6698900.

 With respect to claim 12, per the above discussion, Sayka et al. fail to teach an umbilical cable.

10 Young et al. disclose a projection and display system utilizing (sic) umbilical cable.

 It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Sayka et al. utilizing (sic) umbilical cable taught by Young et al. in order to provide a long life, stronger and/or durable connecting means.

15 As discussed above, Claim 1 has been amended to reflect the use of Applicant's invention in natural unenclosed environments. Claim 12 depends from Claim 1 as amended. As discussed previously, the provision of an umbilical cable 803 (Fig. 8) for the Sayka et al. device would be overkill as the Sayka et al. device is designed to operate in a
20 completely benign environment in an enclosed container such as would be used in a manufacturing plant, not in open water exposed to whatever natural forces may provide. Those knowledgeable of Sayka et al. would have no motivation to add components that would not yield any beneficial result with respect to the Sayka et al. application. Applicant has submitted Claim 12 for claim differentiation purposes as well as to
25 establish the possibility of using a configuration that is able to withstand the environment in open water in which extreme scour and sedimentation occurs during periods such as Spring runoff of a mountain stream or wave action during a tropical storm. Further Applicant's rationale provided as above for Claim 20 applies here also, Claim 20 being dependent upon Claim 1 and Claim 12 being dependent upon Claim 1.

30 Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sayka et al. US5743135 in view of Bell et al. US5491548.

 With respect to claim 21, per the above discussion, Sayka et al. fail to teach said coupler is a four-port optical splitter.

35 Bell et al. disclose an optical signal measurement system having a four-port optical splitter (80) for managing optical signals.

 It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Sayka et al. utilizing a four-port optical splitter taught by Bell et al. in order to provide more control to the destination of the signals.

As discussed above, Claim 1 has been amended to reflect the use of Applicant's invention in natural unenclosed environments. Claim 21 depends from Claim 1 as amended. As discussed previously, the provision of a particular version of a coupler 403 (Fig. 4), i.e., a four-port optical splitter 403, provides both a preferred embodiment and an alternate configuration commensurate with the concept of claim differentiation. Applicant has submitted Claim 21 for claim differentiation purposes as well as to establish the possibility of using alternate configurations of hardware to achieve a desired result. Further Applicant's rationale provided as above for Claim 20 apply here also, Claims 20 and 21 both being dependent upon Claim 1.

Thus, Examiner has not made out a prima facie case of obviousness in regards to Claims 3, 5, 6, 8-13, and 16-21.

Further, Examiner, under the section *Response to Arguments*, Examiner states:

Applicant's arguments filed 11/30/2005 have been fully considered but they are not persuasive.

With respect to applicant's argument, on pages 8-13 of the remarks, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., uses no moving parts, buried in a solid and/or sediments, used in scientific explorations of scouring activities to measure both the amount and rate of scour, sampling rate may be low, know how an object's surface is covered or uncovered by a scouring or sediment event, and a bundle of parallel optical fibers, each of a different length and each having a right angle bend at it terminus for detecting either scour or sedimentation at a pre-specified locations (sic) within an open body of water, etc.) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicants did not elucidate the differences only for the purpose of validating claims but also for the purpose of indicating what Applicant's invention is capable of performing and what the cited reference, Sayka et al., is not, thus establishing the patentable difference. One need not restrict one's arguments to what is claimed but may use the specification, which will be used in any interpretation that may occur in an infringement or declaratory action in a court, to interpret Applicant's invention in light of alleged prior art. This is only common sense. Further, that type of differentiation is critical in any obviousness argument since by definition a 35 U.S.C § 103 obviousness

rejection must involve a patent that is not the exact equivalent of Applicant's and therefore the claims are not the exact equivalent so the description as provided in the specification is appropriate for differentiating the two. Further, in the instant response, Applicants have amended all independent claims (Claims 1, 22 and 23) to specifically establish that Applicant's invention is suitable for use in an unenclosed (or unconfined) natural setting. It is not possible to use Sayka et al. nor Sayka et al. in view of any of the cited references to perform the same tasks as Applicant's invention.

With respect to applicant's argument, on page 10-13 of the remarks, argues that the multiplexer does not provide more control to the receiving and/or processing of the signals. This is found not persuasive. The use of a known and available multiplexer as a switch for switching/manipulating signals/data is well known to one of ordinary skill in the art. By having switching capabilities, multiplexers do provide the maneuvers of switching, redirecting, altering and or allowing/blocking the transmission of signals, thus the use of a multiplexer in an optical system does provide more control to the receiving and/or processing of the signals.

Applicant refers Examiner to discussion of Claim 3 above. Examiner's arguments continue to fail to make a prima facie case of obviousness and are non-responsive unless some motivation is established for combining references as intimated, but not supported with facts, in all of Examiner's arguments.

In response to applicant's argument, on page 13 of the remarks, that there is no suggestion to combine references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention when there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation for the rejection set forth above is found in the knowledge generally available to the examiner as one of ordinary skill in the art.

Applicant now considers this moot in light of the amendments made in this response. Further, Applicant finds this argument unresponsive and the cases cited to be inappropriate for citing to the subject. The *In re Fine* and *In re Jones* cases are cited in the MPEP § 2143.01 with a verbatim statement omitted from Examiner's argument. This statement is provided for reading MPEP §2143.01 in the proper context:

"The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, *and* the nature of the problem to be solved *as a whole* would have suggested to those of ordinary skill in the art." (emphasis added).

5 **Examiner has intentionally omitted the important holding of the two cited cases as provided in the MPEP § 2143.01 to which Examiner's argument has been referenced. This is an inappropriate response. Please note the term "and" and the phrase "as a whole," both of which Examiner did not acknowledge in Examiner's arguments. Using**
10 **Examiner's logic, consider that anyone with a degree in engineering, under any scenario, could always provide the motivation to combine by simply saying so as Examiner has done above.**

15 With respect to applicant's argument on page 13 of the remarks, argues that the provision of plastic optical fibers has little to do with ease of mounting or installing. This is found not persuasive. It is known to one of ordinary skill in the art that plastics are easier to bend and/or alter in any desired directions. Therefore, plastic optical fibers do provided ease of mounting or installing when any adjustments and/or movements of the plastic optical fibers are needed.

20 **Applicant now considers this moot in light of the amendments made in this response. Please see discussion immediately above relating to *In re Fine* and *In re Jones* and the discussion related to Claims 20 and Claim 1. Further, Applicant finds this argument unresponsive since Applicant's argument was not fully addressed. The fact**
25 **that plastic fiber optic cables 302 are easier to bend and/or alter is immaterial to Applicant's claim of use of them in an alternative embodiment. This embodiment is claimed to provide claim differentiation regarding an allowable independent claim, i.e., Claim 1 as amended herein.**

30 With respect to applicant's argument on page 14 of the remarks, argues that optical fibers with an index of refraction of 1.492 has little to do with control of the modulation. This is found not persuasive. It is known in the fiber optics art that the pattern of (sic) the light travels in the optical fibers is affected by the index of refraction of the optical fibers, selecting a specific index of refraction
35 does provide more control to how the light is traveled (sic) within the optical fibers, in particular the modulation of the light and/or signal in the optical fibers.

Applicant now considers this moot in light of the amendments made in this response. Further, Applicant finds this argument unresponsive since Applicant's argument was not fully addressed. Further, please see discussion above relating to *In re Fine* and *In re Jones* and the discussion under Claims 20 and Claim 1. The fact that a signal interacts at a particular index of refraction is immaterial to Applicant's claim of use of a particular index of refraction in an alternative embodiment. This embodiment is claimed to provide claim differentiation regarding an allowable independent claim, i.e., Claim 1 as amended herein.

With respect to applicant's argument, on page 14 of the remarks, argues that the high pass filter with an amplifier has little to do with accuracy of results. This is found not persuasive. The use of a high pass filter to filter out unwanted signals and/or components in order to obtain a desired (sic) and/or (sic) reduce the noise of the signals/components and then use an amplifier to increase an (sic) output signals/components to a sufficient level for detection/manipulation is known to one of ordinary skill in the electric art. Therefore, the use (sic) the high pass filter with an amplifier provide (sic) a more accurate/desired/proper measurement/signal/components (sic) from the system.

Applicant now considers this moot in light of the amendments made in this response. Further, Applicant finds this argument unresponsive since Applicant's argument was not fully addressed. Further, please see discussion above relating to *In re Fine* and *In re Jones* and the discussion under Claims 20 and Claim 1. The fact that a high pass filter 407 (Fig. 4) functions to filter out unwanted signals is immaterial to Applicant's claim of use of them and amplifiers 408 (Fig. 4) in an alternative embodiment. This embodiment is claimed to provide claim differentiation regarding an allowable independent claim, i.e., Claim 1 as amended herein.

In response to applicant's argument, on page 14-15 of the remarks, that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention when there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation for the rejection set forth above is found in the knowledge generally available to the examiner as one of ordinary skill in the art.

Applicant now considers this moot in light of the amendments made in this response. Further, Applicant finds this argument unresponsive and the cases cited to be inappropriate for citing to the subject. Further, please see discussion above relating to *In re Fine* and *In re Jones* and the discussion under Claims 20 and Claim 1. Consider that anyone with a degree in engineering, under any scenario, could always provide the motivation to combine by simply saying so as Examiner has done above.

With respect to applicant's argument, on page 15 of the remarks, argues that the provision of a power meter has little to do with monitoring the performance of the subsystem. This is found not persuasive. Using a power meter to monitor and/or track the performance and/or power level of any electrical components is known to one of ordinary skill in the electric art so that the expected result from the system is more reliable. Thus, the inclusion of a power meter in the sub-system having electric devices (microprocessor, display, alarm) does provide monitoring to the functionalities and/or performance of the sub-system.

Applicant now considers this moot in light of the amendments made in this response. Further, Applicant finds this argument unresponsive since Applicant's argument was not fully addressed. Further, please see discussion above relating to *In re Fine* and *In re Jones* and the discussion under Claims 20 and Claim 1. The fact that a power meter 901 (Fig. 9) is used in lieu of multiple separate other circuit devices 406, 407, 408, 409 (Figs. 4 and 5) is immaterial to Applicant's claim of use of these circuit devices 406, 407, 408, 409 in an alternative embodiment. This embodiment is claimed to provide claim differentiation regarding an allowable independent claim, i.e., Claim 1 as amended herein. Further, it is not apparent from Examiner's argument that Examiner understands that the power meter is used as a replacement for the separate circuit devices 406, 407, 408, 409, and not as a measuring and display device.

In response to applicant's argument, on page 15 of the remarks, that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention when there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation for the

rejection set forth above is found in the knowledge generally available to the examiner as one of ordinary skill in the art.

Applicant now considers this moot in light of the amendments made in this response. Further, Applicant finds this argument unresponsive and the cases cited to be inappropriate for citing to the subject. Further, please see discussion above relating to *In re Fine* and *In re Jones* and the discussion under Claims 20 and Claim 1. Consider that anyone with a degree in engineering, under any scenario, could always provide the motivation to combine by simply saying so as Examiner has done above.

With respect to applicant's argument, on page 16 of the remarks, argues that the provision of an umbilical cable would be overkill for Sayka et al.'s system. This is found not persuasive. Umbilical cables are known in the art for their long-lasting and/or sturdiness properties. Selecting a specific type of cable for providing long lasting and/or sturdy components to the system would have been obvious routine skill in the optic art for providing a more reliable components (sic) of the system. Therefore, it is not overkill as stated in the remarks, but to ensure the desired operation of the system for a longer period of time.

Applicant now considers this moot in light of the amendments made in this response. Further, Applicant finds this argument unresponsive since Applicant's argument was not fully addressed. Further, please see discussion above relating to *In re Fine* and *In re Jones* and the discussion under Claims 20 and Claim 1. The fact that an umbilical cable 803 (Fig. 8) is used in an alternative embodiment of Applicant's invention (and would be overkill in the Sayka et al. device since the Sayka et al. device operates in an enclosed benign environment) is immaterial to Applicant's claim of use of it in an alternative embodiment. This embodiment is claimed to provide claim differentiation regarding an allowable independent claim, i.e., Claim 1 as amended herein.

In response to applicant's argument, on page 16 of the remarks, that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention when there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation for the

rejection set forth above is found in the knowledge generally available to the examiner as one of ordinary skill in the art.

Applicant now considers this moot in light of the amendments made in this response. Further, Applicant finds this argument unresponsive and the cases cited to be inappropriate for citing to the subject. Further, please see discussion above relating to *In re Fine* and *In re Jones* and the discussion under Claims 20 and Claim 1. Consider that anyone with a degree in engineering, under any scenario, could always provide the motivation to combine by simply saying so as Examiner has done above.

With respect to applicant's argument, on page 16 of the remarks, argues that the provision of an anchoring device for Sayka et al.'s system would be overkill. This is found not persuasive. The components of Sayka et al.'s system such as the light source, photodetectors, display (392), microprocessor (390), alarm (394), coupler bank (340) and the fibers do need anchoring device(s) to introduce steadiness and/or fixed positions of the components in order to prevent any vibrations and/or displacements of the components of the system which would cause possible malfunctioning and/or unreliable measurement from the system. Therefore, and anchoring device for stabilizing purposes would not be overkill as stated in the remarks, but to yield beneficial performance to the system.

Applicant now considers this moot in light of the amendments made in this response. Further, Applicant finds this argument unresponsive since Applicant's argument was not fully addressed. Further, please see discussion above relating to *In re Fine* and *In re Jones* and the discussion under Claims 20 and Claim 1. The fact that an anchoring device 804 (Fig. 8) is used in an alternative embodiment of Applicant's invention (and would be overkill in the Sayka et al. device since the Sayka et al. device operates in an enclosed benign environment) is immaterial to Applicant's claim of use of it in an alternative embodiment. Further, nowhere in the Sayka et al. patent, nor any of the other referenced patents, is there mentioned any "need" for an anchoring device 804, heavy, light, or otherwise. This embodiment is claimed to provide claim differentiation regarding an allowable independent claim, i.e., Claim 1 as amended herein.

In response to applicant's argument, on page 16 of the remarks, that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention when there is some teaching,

suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation for the rejection set forth above is found in the knowledge generally available to the examiner as one of ordinary skill in the art.

Applicant now considers this moot in light of the amendments made in this response. Further, Applicant finds this argument unresponsive and the cases cited to be inappropriate for citing to the subject. Further, please see discussion above relating to *In re Fine* and *In re Jones* and the discussion under Claims 20 and Claim 1. Consider that anyone with a degree in engineering, under any scenario, could always provide the motivation to combine by simply saying so as Examiner has done above.

With respect to applicant's argument, on page 17 of the remarks, argues that the provision of cyclical signals has little to do with more control to the performance of the source. This is found not persuasive. By having at least one source of optical signals provided as a cyclical signal, it is manipulating and/or controlling the signals/performances/output of the at least one source of optical signals. Therefore, the provision of cyclical signals and/or any other form of signals of the at least one source of optical signals in order to provide a desired optical signal/data/illumination depends on specific needs (sic) is providing more control of the performances/functionalities of the at least one source of the optical signals.

Applicant now considers this moot in light of the amendments made in this response. Further, Applicant finds this argument unresponsive since Applicant's argument was not fully addressed. The fact that cyclical signals are used provides an improvement in operation of Applicant's invention as the ambient light changes, as may be expected in an exposed natural environment. This would never be the case in the closed tank of the Sayka et al. invention, the light remaining the same. Further, Examiner's argument is immaterial to Applicant's claim of use of cyclical signals in an alternative embodiment. Further, neither in the Sayka et al. patent, nor any of the other referenced patents, is there mentioned any "need" for a cyclical signal to overcome changes in ambient light which would detract from any baseline that was established for operation of the device. Finally, this embodiment is claimed to provide claim

differentiation regarding an allowable independent claim, i.e., Claim 1 as amended herein.

In response to applicant's argument, on page 17 of the remarks, that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention when there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation for the rejection set forth above is found in the knowledge generally available to the examiner as one of ordinary skill in the art.

Applicant now considers this moot in light of the amendments made in this response. Further, Applicant finds this argument unresponsive and the cases cited to be inappropriate for citing to the subject. Further, please see discussion above relating to *In re Fine* and *In re Jones* and the discussion under Claims 20 and Claim 1. Consider that anyone with a degree in engineering, under any scenario, could always provide the motivation to combine by simply saying so as Examiner has done above.

With respect to applicant's argument, on page 18 of the remarks, argues that the provision of a particular version of photodetector has little to do with providing a compact design of the system. This is found not persuasive. There are different sizes of photodetectors; in particular, detectors such as photodiodes and/or phototransistors (sic) are generally more compact and smaller in size. Therefore, by providing smaller and/or compact components of the system, it would promote the compact design of the system.

Applicant now considers this moot in light of the amendments made in this response. Further, Applicant finds this argument unresponsive since Applicant's argument was not fully addressed. The fact that a particular version of photodetector 406 (Fig. 4) is used in an alternative embodiment of Applicant's invention is immaterial to Applicant's claim of use of it in an alternative embodiment. This embodiment is claimed to provide claim differentiation regarding an allowable independent claim, i.e., Claim 1 as amended herein.

In response to applicant's argument, on page 17 of the remarks, that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of

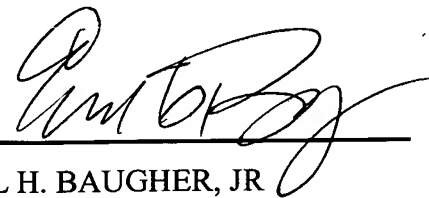
the prior art to produce the claimed invention when there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation for the rejection set forth above is found in the knowledge generally available to the examiner as one of ordinary skill in the art.

Accordingly, the rejections set forth above are proper.

Applicant now considers this moot in light of the amendments made in this response. Further, Applicant finds this argument unresponsive and the cases cited to be inappropriate for citing to the subject. Further, please see discussion above relating to *In re Fine* and *In re Jones* and the discussion under Claims 20 and Claim 1. Consider that anyone with a degree in engineering, under any scenario, could always provide the motivation to combine by simply saying so as Examiner has done above.

No new matter has been entered via this amendment. Applicant has amended independent Claims 1, 22 and 23 herein to put them in condition for allowance. Since independent Claim 1 is suitable for allowance, dependent claims 2-21 are also. In view of the foregoing, it is respectfully requested that the subject application be passed to issue as amended hereby with currently amended Claims 1, 22, 23, previously amended Claims 2-4, 8, 10, 16, and 19 and original Claims 5-7, 9, 11-15, 17, 18, 20 and 21.

Respectfully Submitted,

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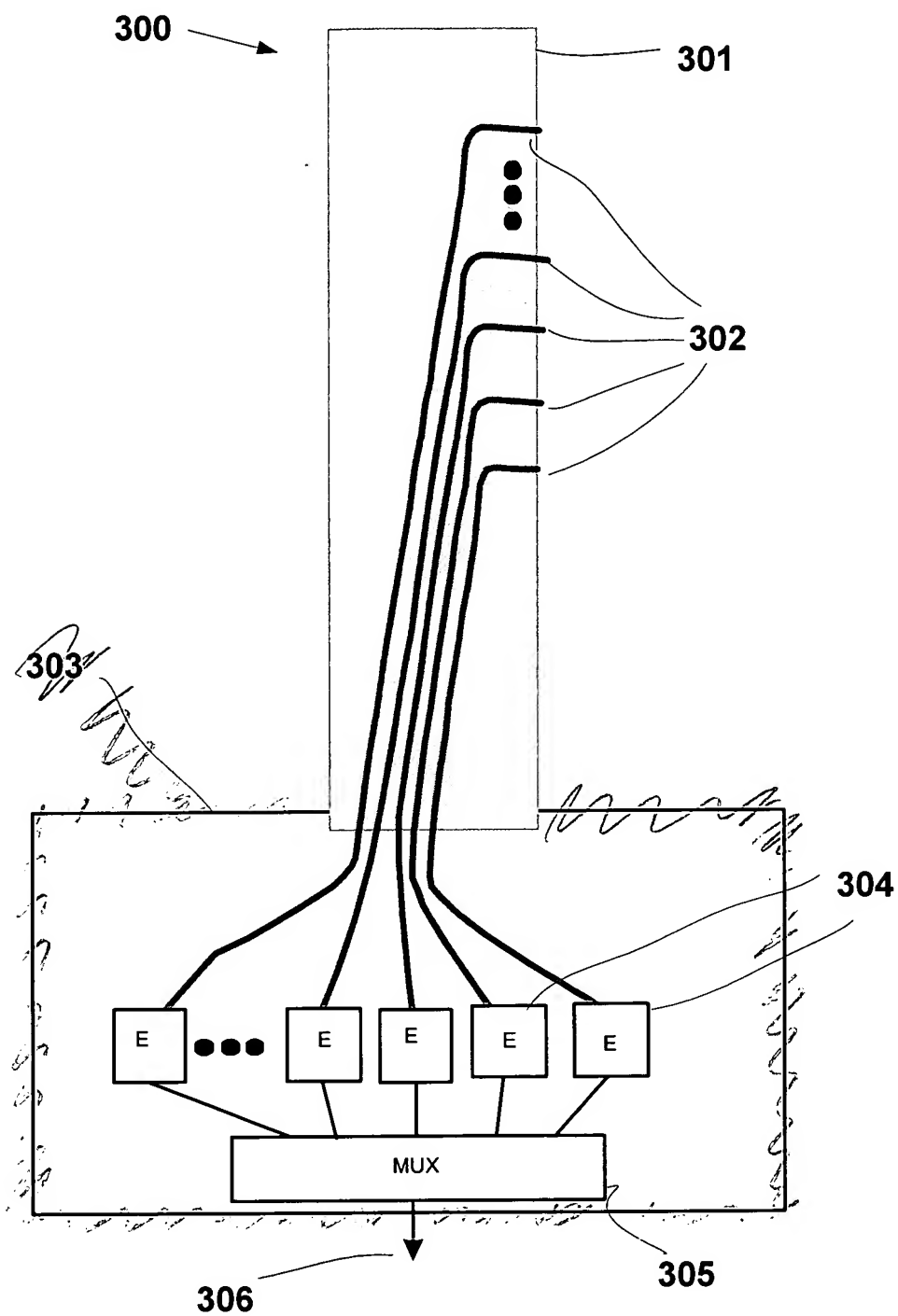


Fig. 3

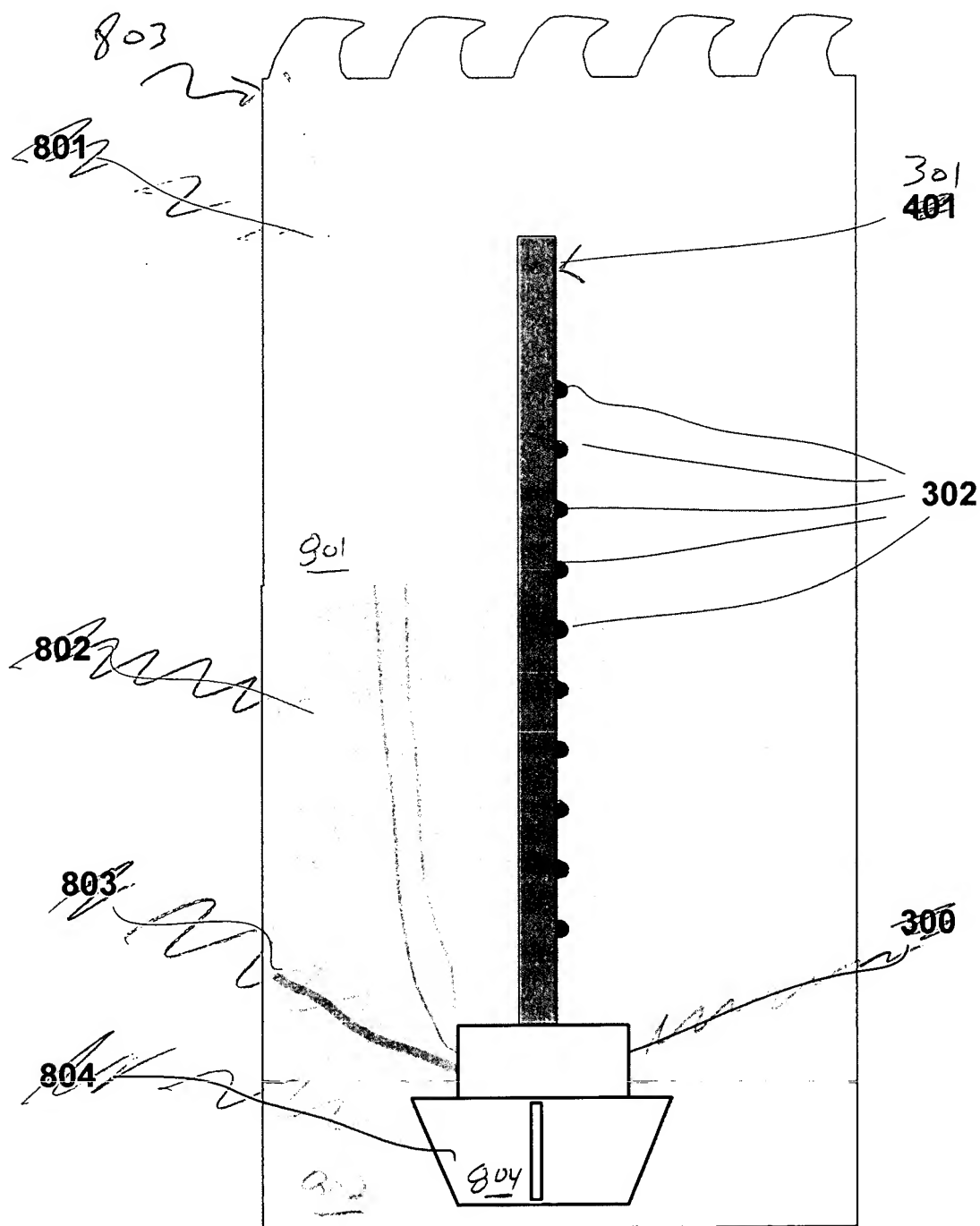


Fig. 8